

Claims

1. A method for generating retinal images using the stigmatism of two foci (F, F') of a substantially elliptical diopter (E) comprising a semi-reflecting surface,

characterized in that it consists of performing:

- 5 • positioning in the vicinity of the first focus (F) of said elliptical substantially diopter (E):
- a so-called "source" focus formed by the diaphragm of a pin diaphragm forming a convergence point of an image generated by a luminous display or a light source, or
 - 10 ○ a luminous display, each object point of which generates a beam first of all convergent before reflection on the semi-reflecting surface of said substantially elliptical diopter, and then parallel in the vicinity of the pupil of the eye,
- 15 • positioning in the vicinity of the second focus (F') of said substantially elliptical diopter (E), a so-called "image" focus formed by the pupil or the centre of the eye (OE) of the observer,
- 20 • projecting in the vicinity of the retina of the eye of the observer, the image generated by said luminous display or by said light source and reflected by the semi-reflecting surface of said substantially elliptical diopter (E).

2. The method according to claim 1,
characterized in that the aforesaid image generated by the luminous display is compressed according to a reciprocal mathematical function relatively to the
25 distortion caused by the aforesaid substantially elliptical diopter (E).

3. The method according to claim 1,

characterized in that the aforesaid image generated by the luminous display is slightly tilted in order to reduce the distortion caused by the aforesaid substantially elliptical diopter (E).

5 4. The method according to claim 1,
characterized in that it comprises an optical system generating an inverted distortion so as to compensate the distortion caused by the aforesaid substantially elliptical diopter (E).

10 5. The method according to claim 1,
characterized in that it comprises a scanning system and a converging lens with a variable focal lens associated with the light source.

15 6. The method according to claim 1,
characterized in that it comprises two identical substantial elliptical diopters separated by a converging lens with a transverse magnification equal to -1.

20 7. The method according to claim 1,
characterized in that it comprises two different substantially elliptical diopters separated by a converging lens with a transverse magnification different from -1.

25 8. A device for applying the method according to claim 1, using the stigmatism of two foci (F, F') of a substantially elliptical diopter (E) comprising a semi-reflecting surface, characterized in that it comprises:

- a so-called "source" focus formed by:
 - the diaphragm of a pin diaphragm forming a convergence point of an image generated by a luminous display, or a light

source, or

- a luminous display, each object point of which generates a beam first of all convergent before reflection on the semi-reflecting surface of said substantially elliptical diopter, and
5 then parallel to the vicinity of the pupil of the eye,

positioned in the vicinity of the first focus (F) of said substantially elliptical diopter (E),

- a so-called "image" focus formed by the pupil or the centre of the eye (OE) of the observer, positioned in the vicinity of the second focus (F') of said substantially elliptical diopter (E),
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- a projection in the vicinity of the retina of the eye of the observer, of the image generated by said luminous display or by said light source, and reflected by the semi-reflecting surface of said substantially elliptical diopter (E).

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9. The device according to claim 8,
characterized in that it comprises optical correction means adapted to the ocular system of the user.

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10. The device according to claim 9,
characterized in that the aforesaid optical correction means adapted to the ocular system of the user are adjustable.